



DIFFUSION BONDED TOOLING WITH CONFORMAL COOLING

Name of Inventors: Joseph V. Bak, et al.
Name & Telephone Number of Person to Call If Necessary:
Scott A. Blake - (419) 255-5900

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09/827,046

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FIG. 1

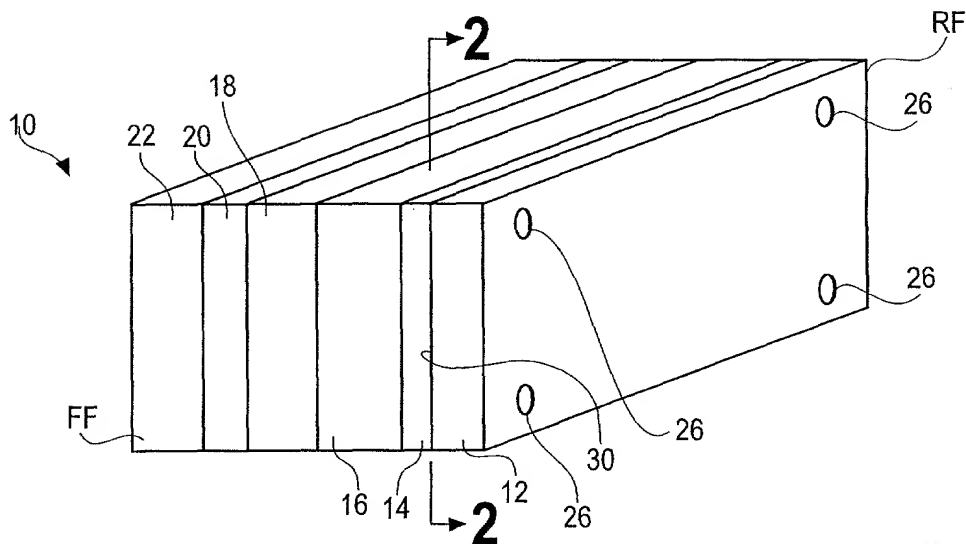
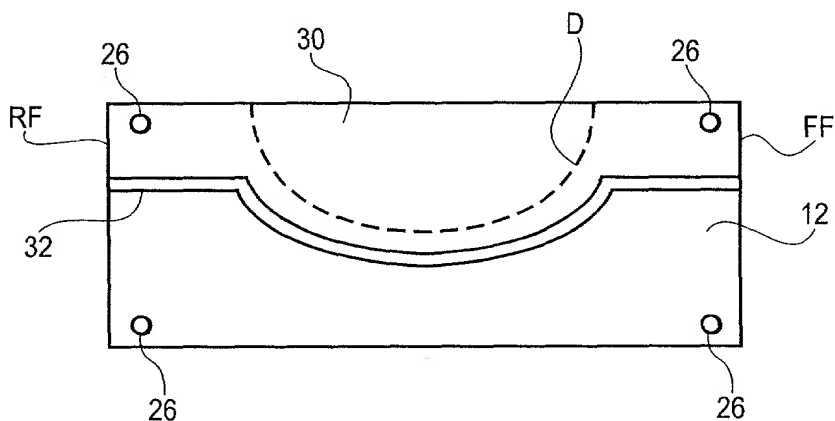


FIG. 2





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FIG. 3

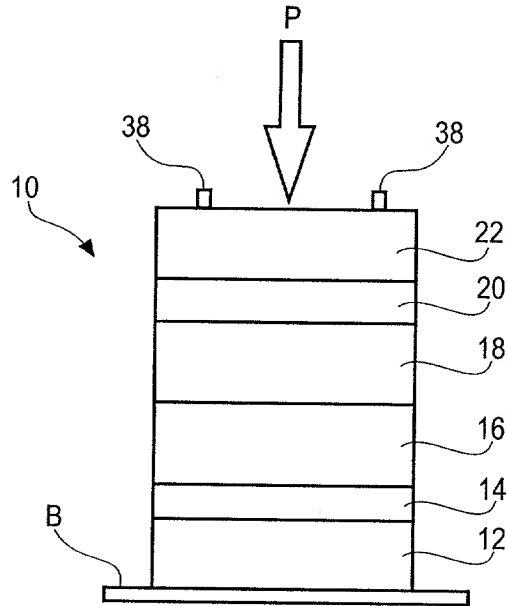
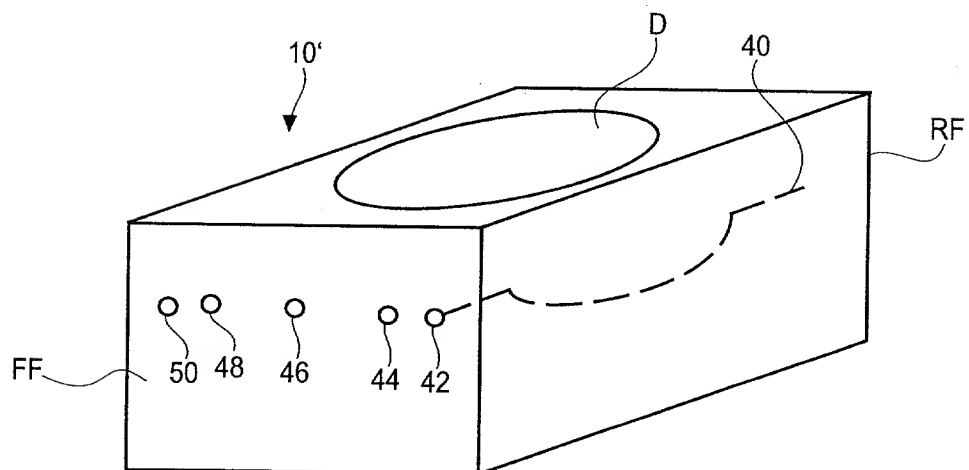


FIG. 4



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FIG. 5A

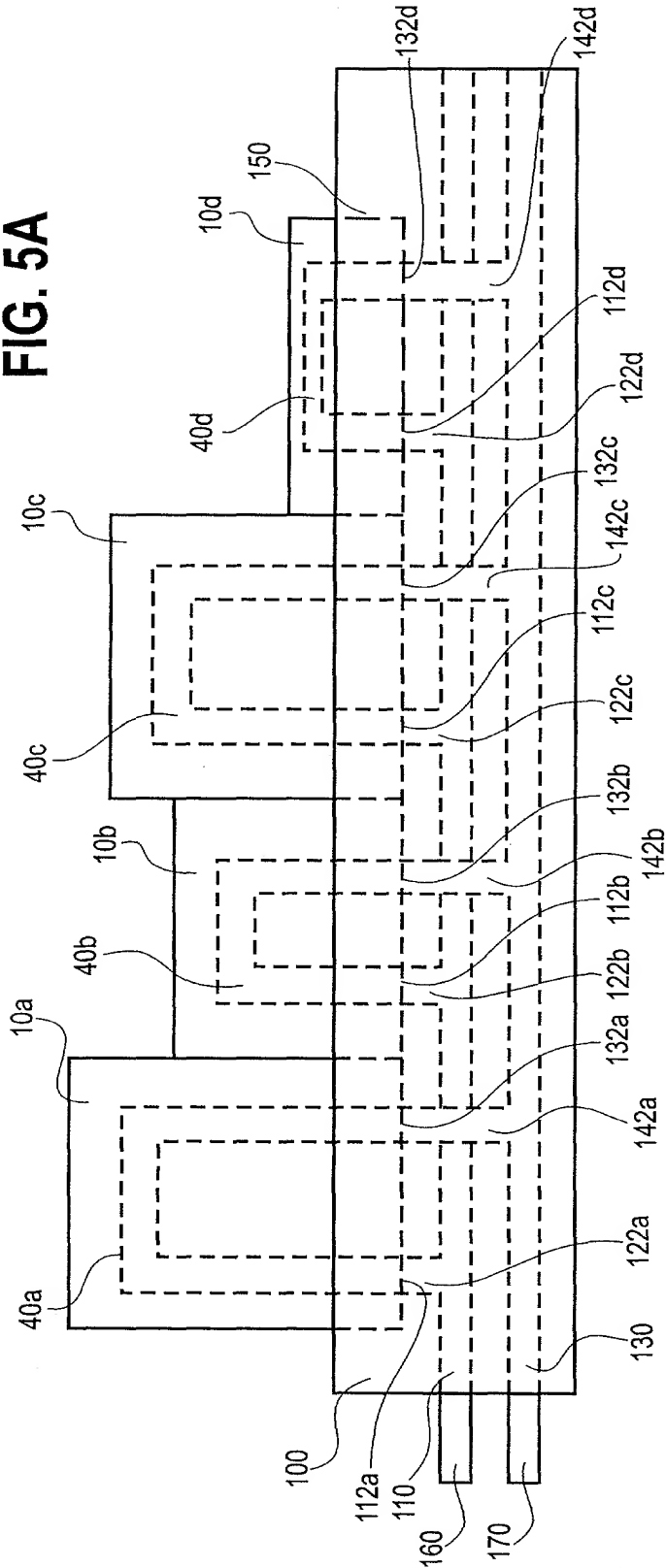
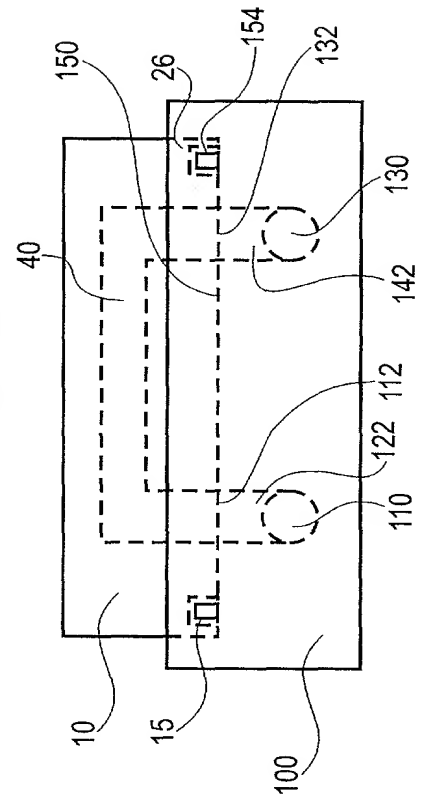


FIG. 5B



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FIG. 6A

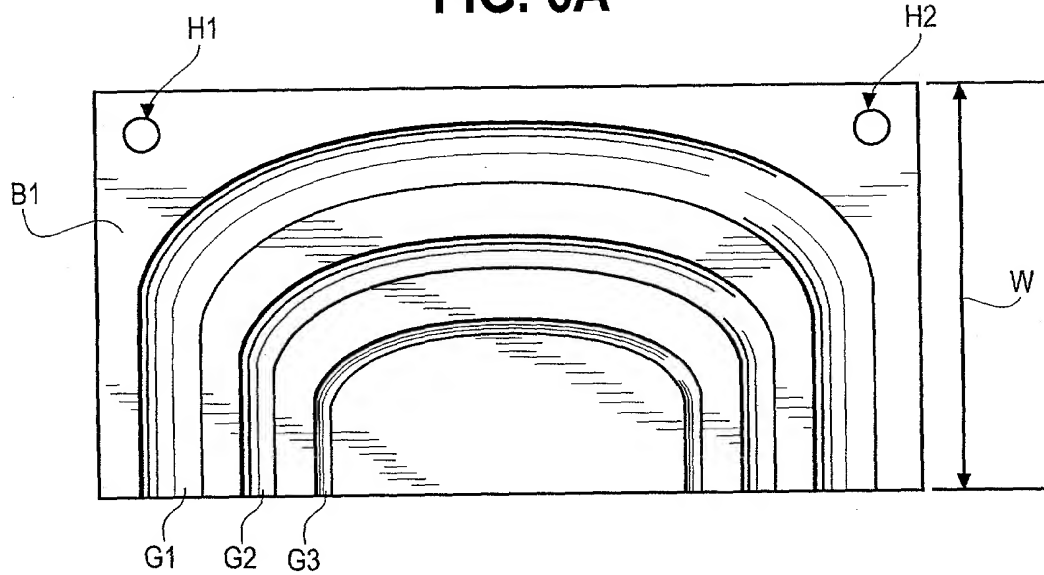
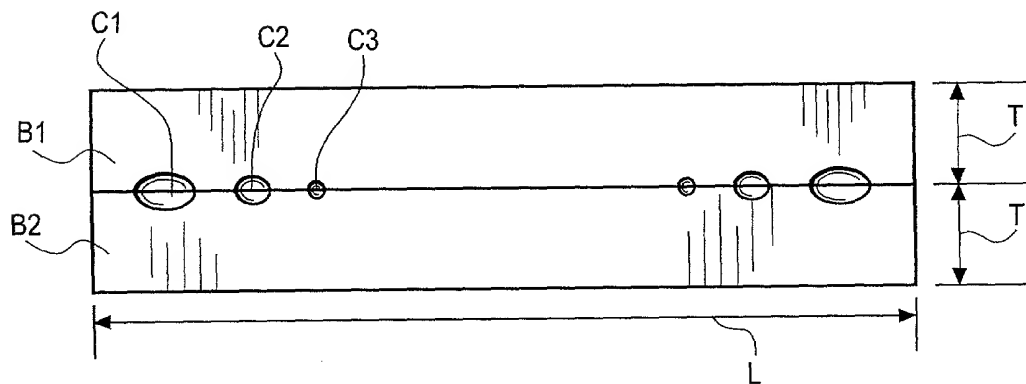


FIG. 6B





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FIG. 7

BOND STRENGTH

BOND PRESSURE, ksi	% DEFORMATION	HEAT TREATED	HARDNESS, Rc	STRENGTH, ksi
0.75	0.13	N	28	53
0.75	0.13	Y	54	45
1.5	1.5	N	30	143
1.5	1.5	Y	46	189
3.0	15.1	N	28	158
3.0	15.1	Y	46	219

S7 STRENGTH:

ANNEALED = 93ksi

HEAT TREATED = 300 KSI

S7 HARDNESS = 50 Rc



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FIG. 8A

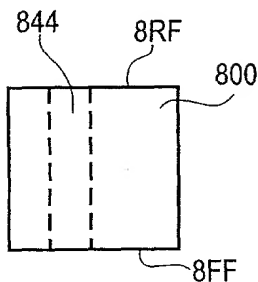


FIG. 8B

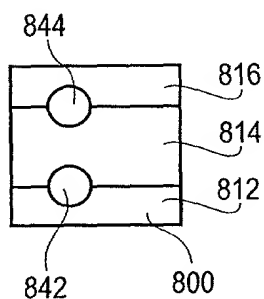


FIG. 9A

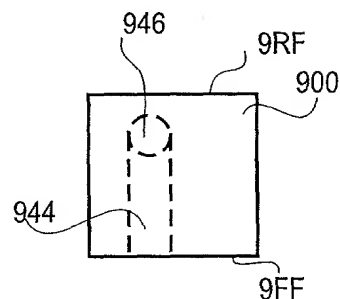


FIG. 9B

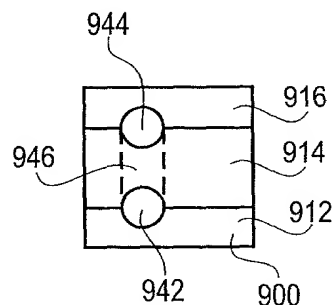


FIG. 10A

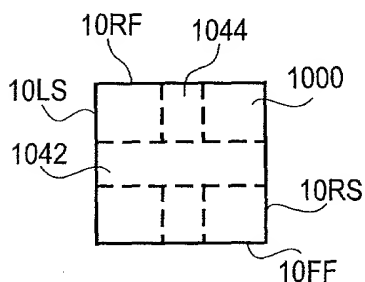


FIG. 10B

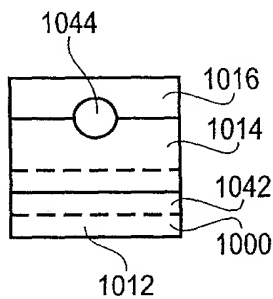


FIG. 11A

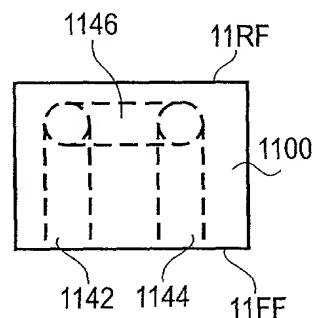


FIG. 11B

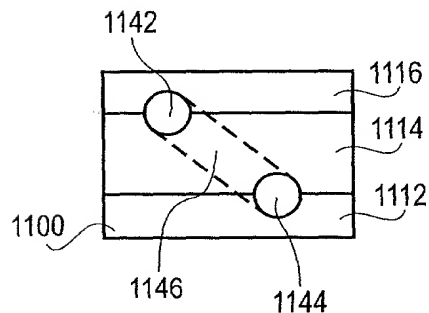




FIG. 12A

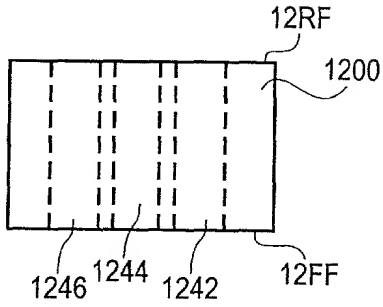


FIG. 12B

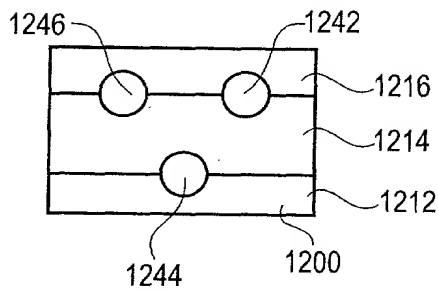


FIG. 13A

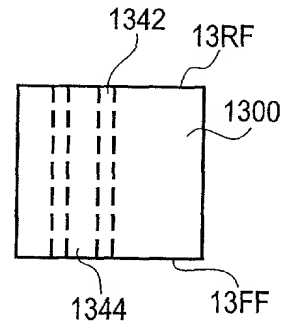


FIG. 13B

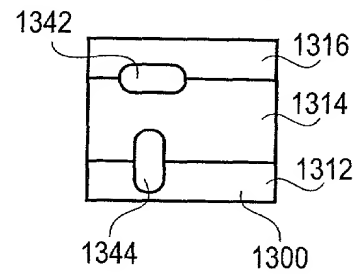


FIG. 14A

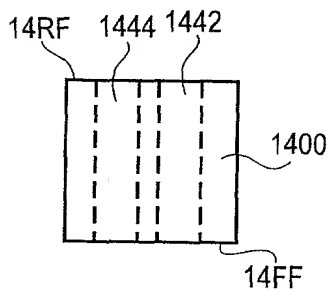


FIG. 14B

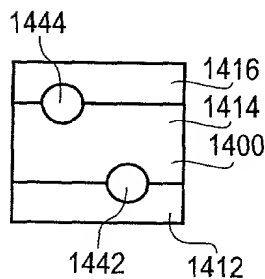


FIG. 15A

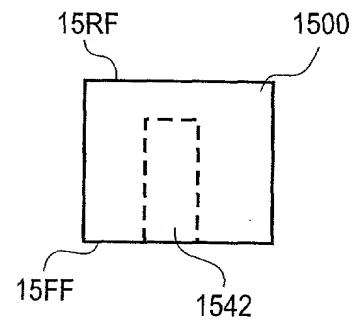


FIG. 15B

